



# Slingmakers

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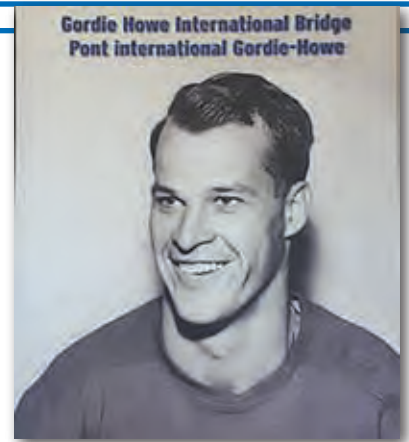
**RECORD-BREAKING  
GORDIE HOWE  
INTERNATIONAL  
BRIDGE HONORS  
NAMESAKE  
HOCKEY PLAYER**

Photo Provided by



Ashley Sling, Inc.

# Record-breaking Gordie Howe International Bridge Honors Namesake Hockey Player



Gordie Howe (Photo Courtesy of WDBA)

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During his illustrious career, Gordie Howe, known as “Mr. Hockey,” impressed Canadian and U.S. hockey fans with his extraordinary talent. Now, his legacy is being honored through the construction of the Gordie Howe International Bridge that will connect Windsor, Ontario, and Detroit, Michigan, the busiest border crossing between the two countries. The bridge will mark the start of a new era, accommodating future trade and travel demands between Canada and the United States.

Like Howe, the new bridge is breaking records. It will be the longest cable-stayed bridge span in North America and the longest composite-deck cable-stayed bridge in the world.

The bridge’s name was a perfect choice for this massive infrastructure project. Gordie Howe, a Canadian and National Hockey League (NHL) All-Star player, holds the record for the number of seasons played. In 2017, he was named one of the 100 greatest NHL players. His impressive record included 801 goals, 1,049 assists and 1,850 total points. Howe (1928-2016) played his first 25 seasons with the Detroit Red Wings, an American ice hockey team based in Detroit.

In 2015, Canadian Prime Minister Stephen Harper and Michigan Governor Rick Snyder announced that the bridge would be named in Howe’s honor.

The project has required a tenacious desire between both countries to build a bridge that is expected to accommodate significant traffic volumes. Windsor-

Detroit Bridge Authority (WDBA) reports that the fixed-priced contract for the bridge is valued at \$5.7 billion Canadian. That includes the design-build phase and the operation, maintenance and rehabilitation phase.

WDBA and Bridging North America (BNA), the private-sector partner, have more than 150 members on the engineering team working on the bridge project.

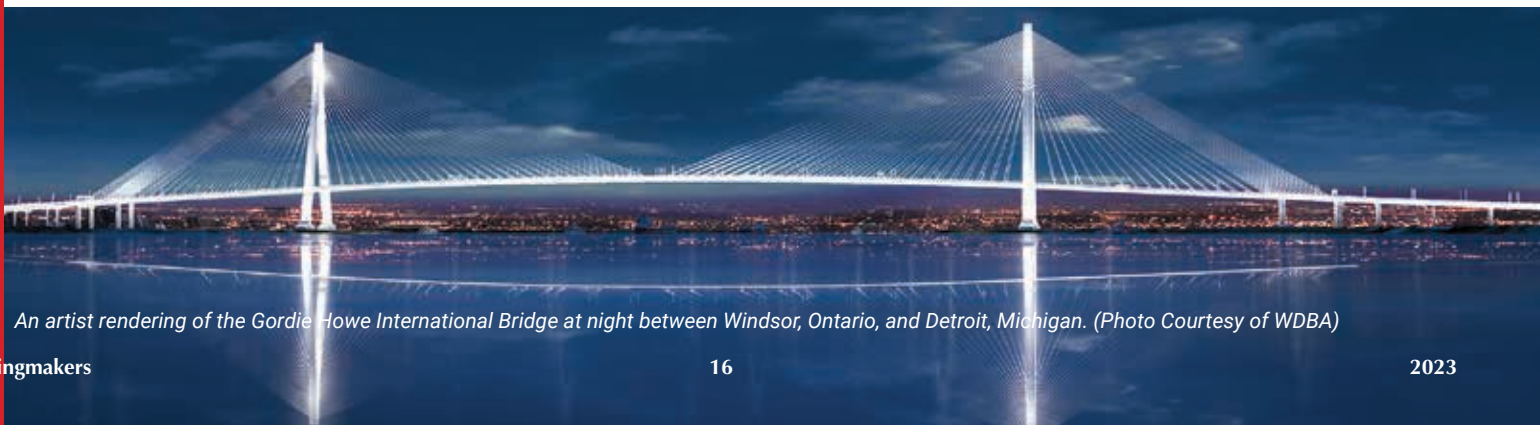
## Bridge Planning Began in 2000

WDBA reports that the bridge construction started in 2018, but planning began in 2000. Engineers and other experts prepared a Cross Border Traffic Study, a Planning Needs and Feasibility Study and a Binational Environmental Study that offers border transportation solutions to meet future transportation needs while minimizing community impacts.

The future bridge will have four main components:

- The bridge — a six-lane cable-stayed bridge with a span of one-half mile across the Detroit River
- Canadian Port of Entry
- U.S. Port of Entry
- Michigan Interchange with Interstate 75

The new bridge will provide uninterrupted freeway traffic flow. The crossing times will be shorter, saving time for truckers and non-commercial drivers. During construction, the shipping channel through the Detroit River will remain open, with continuous coordination and communication between the project team and agencies.



An artist rendering of the Gordie Howe International Bridge at night between Windsor, Ontario, and Detroit, Michigan. (Photo Courtesy of WDBA)

## Bridge Breaks Records

The bridge's design is truly awe inspiring. With a clear span of approximately one-half mile, it will be the longest main span of any cable-stayed bridge in North America. The two iconic bridge towers will stand tall at an impressive 722 feet.

"The modern and elegant design of the towers and cable-stayed system negates the need for piers in the water," WDBA reports, "and provides more rigidity than a cable suspension design."

According to the approved environmental assessment for the project, piers were not permitted to be constructed in the water to limit the impact on the Detroit River ecosystem and the shipping channel.

Initially the bridge team was going to use the balanced cantilever approach to construction. However, the team eventually opted for the unbalanced cantilever method because of obstacles such as limited water access, deep soft clay and winter weather.

With the unbalanced approach, the back span of the road deck is built first, reports WDBA. Temporary falsework bents support it. Then construction progresses on the main span over the Detroit River.

The construction process started from the towers in Windsor and Detroit, with the bridge progressing outward over the river one segment at a time using a crane on the deck and meeting in the middle.

Other challenges faced the BNA team. Near the Detroit River, deep foundation works required temporary seawall protection. Because of artesian groundwater conditions, the team had to implement groundwater control plans. Additionally, a special underwater concrete mix design is being used for the drilled shaft construction.

## Lifting and Rigging Needs Require Special Equipment

Because of the bridge's complexity, the team needed noteworthy lifting and rigging equipment. For example, special lifting frames and rigging equipment were required for the jump form climbing system that protects workers during bridge tower construction in Canada and the United States.

In addition, the installation of the edge girders and floor beams for the bridge deck and the anchor boxes inside the upper pylon of each tower also requires



A crane is used to lift a floor beam that will be part of the bridge deck for the Gordie Howe International Bridge. Each floor beam weighs 55,115 pounds and measures 113 feet in length. (Photo Courtesy of WDBA)



Workers prepare a floor beam to be erected into the bridge deck for the Gordie Howe International Bridge. Each floor beam weighs 55,115 pounds and measures 113 feet in length. (Photos Courtesy of WDBA)

special lifting equipment to provide adequate control for the lifting work.

- Here's a list of some of the critical equipment used for lifting and rigging for the bridge construction:
- Tower cranes, each with a capacity of 110,231 pounds and a 197-foot working radius. Their total height is 797 feet, making them among the tallest cranes ever used for tower construction in Ontario.
- Lattice boom crawler cranes, each 661,387 pounds, with automatic counterweight positioning to facilitate erection work for bridge deck construction.
- Straddle carriers, each 330,693 pounds, to help move heavy bridge deck components and anchor boxes within the storage areas.
- 360-degree rotating telehandlers.

## Anticipating a Promising Future

Future travelers will enjoy the convenience of six vehicle-traffic lanes and a multi-use pedestrian path offering a spectacular view of the Detroit River. Visitors walking along the bridge deck will be 138 feet above the water near the towers with a gentle 5% incline.

Shippers will appreciate the deck's height, allowing vessels to pass 150 feet beneath the bridge in the middle of the Detroit River.

## Bridge Deck Uses Sustainable Materials

The bridge deck for the Gordie Howe International Bridge is made of steel edge girders, steel floor beams, steel redundancy girders, steel soffit panels and slabs of concrete precast panels. No plastic or wood fibers are incorporated into the deck.

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Construction of the bridge deck began in December 2022 and will continue into 2024. WDBA reports that construction activities include:

- Assembly of crane and construction equipment on the bridge deck (complete)
- Structural steel and girder installation that will make up the bridge deck
- Installation of cable stays

## Stay Cables Play an Important Role

Stay cables play a critical role in the construction of the Gordie Howe International Bridge. The design calls for the installation of 216 stay cables, with 108 on each tower.

According to WDBA, the stay cables are composed of metal strands inside weather-resistant high-density polyethylene (HDPE) plastic pipes anchored to two points – the anchor boxes inside both towers and the edge girders on the decks.

More than 16,000 strands will be used to connect the bridge towers to the deck. Crews will feed between 38 and 122 cable strands inside each HDPE pipe. End to end, the strands will measure a length of approximately 3,107 miles. That is the same length as the distance from Windsor, Ontario, to Alaska.

## Prioritizing Safety

Building the Gordie Howe International Bridge poses unique safety concerns. The WDBA/BNA team coordinates and communicates with relevant agencies, including the U.S. Coast Guard, Canadian Coast Guard and Windsor Port Authority. The construction team has:

- Developed an emergency response plan
- Provided ongoing staff safety and emergency response training
- Implemented a construction access traveller system – the platform



Dave Beaudoin  
(Photo Courtesy of WDBA)

attached under the bridge deck at the leading edge to prevent objects from falling into the water

In addition, safety boats and specially trained rescue teams are on the side. A 150-foot exclusion zone is in place along the Canadian bridge site shoreline to prevent boaters from entering construction zones.

## Pandemic May Impact Planned 2024 Opening

WDBA and BNA continue to work toward opening the bridge to traffic by the contracted date of the end of 2024. According to WDBA, the COVID-19 pandemic and other issues may lead to schedule adjustments.

“With the COVID-19 pandemic and related safety precautions now at a steady state, we are actively assessing the potential impacts of the pandemic on the project schedule,” according to WDBA.

## Crane Operator Appreciates Opportunity

Among the numerous skilled workers contributing to this historic project is Dave Beaudoin, a journeyman tower crane operator. He reveals what it is like to work on the bridge in a WDBA video.

Beaudoin says it is “pretty amazing” to be part of this international project so close to home. Previously, his projects took him on the road.

As part of his job, Beaudoin is 130 feet in the air. But the crane operator explains he is working on flat ground, and many safety precautions are in place. “The views up here on the bridge deck are obviously better than most places, and you can watch the boats go by,” he says.

Working on the Gordie Howe International Bridge has helped advance Beaudoin’s career. While on the project, he has operated multiple pieces of equipment.

Beaudoin lives in Harrow, Ontario, about 30 minutes from the project site. From his backyard, he can see the bridge’s two towers.

“It’s going to be pretty awesome for my kids to grow up and be able to see (the towers) from our own backyard and know that it was something that their dad had a hand in building,” he says.

## Remembering Gordie Howe

When travelers head across the Gordie Howe International Bridge in the future, they will appreciate the seamless travel and stunning views between Ontario and Michigan. Just as Gordie Howe was celebrated for his exceptional skills on the ice, the international bridge team, with hundreds of skilled workers in many disciplines, will be recognized for their efforts to complete this record-breaking bridge.